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A Case of Preservation of the Human Body by the Acetate of Alumina.

By Jno. T. Sharpless, M. D., Philadelphia.

As the process of embalming the human body, for the purpose of transportation or long preservation has rarely been attempted in this city, (except for the purposes of the Anatomist,) it may prove interesting and useful to state the result of an experiment recently made.

A gentleman from Canada, aged 64 years, died in June last of cancer of the stomach. One year previous he weighed 208 pounds, and at his death about 140 pounds, and had become very much infiltrated with water. To enable his family to take him home, Dr. Wm. R. Grant, Demonstrator of Anatomy of Jefferson College, and the writer, undertook to preserve the body. The weather was very sultry, with rain and sun nearly every day.

He died at 6 o'clock A. M. on Friday. In the afternoon the only incision that was permitted by the family, was made in the middle of the abdomen, and large injecting tubes were placed in the aorta below the superior mesenteric artery, one pointing each way. A saturated solution of corrosive sublimate in alcohol was thrown in, a quart upward and a pint downward, and the body was kept damp by a weaker mixture.

We next day injected the same quantity of a saturated solution of the acetate of alumine, which had the immediate effect of giving the whole body a manifest rose colour, making it resemble life in a remarkable degree. The face and hands were kept constantly damp with the solution, and the body frequently washed with it.

The next day, Sunday, being an exceedingly hot day, there was a green stripe the whole length of the fibula of one side, and a similar spot upon the ribs, with vesications on several parts of the body, but no odour or other indications of putrefaction. The usual blue effusion of blood along the back and under parts had changed to a bright red, which remained to the last. We again injected nearly the same quantity of the aluminous solution with sufficient force to distend the arteries of the forehead, during which operation the green stripes upon the leg and ribs changed to a light brown, which colour they retained until the body was sent away. On Monday a pint of the solution was injected, the tubes removed, the aorta well secured, and the abdomen closed, and at 9 P. M. the body was placed in the coffin, with cotton wadding dipped in alcohol around the face and hands. The joints were all perfectly flexible; the skin of the limbs and body was so like life, that, from appearances, no one would have believed them dead, the hands more particularly, the skin of which was very soft, and the fingers, were beautifully tinted with a bright rose colour, as were also the convolutions of the ears. The face was less natural, having shrivelled from the constant contact of the solution. There was no ice used, or any precaution against the heat,

the body being in a room with little circulation of air, and the sun shining in and even upon the body several hours in the morning.

It was removed next day, Tuesday. During its transit, it was, of course, exposed to great heat from the sun, the weather remaining exceedingly warm, and the size of the enclosing box preventing it being well covered. It arrived at home on Friday afternoon, the eighth day after death. The appearance upon arrival I will give as received by letter. "The coffin was opened at four o'clock P. M., and you would have been much pleased to have seen how slight a change had taken place; none whatever in the face, unless it was a little thinner. The hand, left exposed for view, was, however, less beautiful than when you saw it, having become, with the exception of the fingers, of a darkish hue. The next day the face began also to change in colour." There was a slight odour, but not of putrefaction, or any other indication of such a change. The body was buried on Monday, the eleventh day after death. The brown colour mentioned was from mere desiccation of the skin, and if the parts had been kept moist, the colour would have remained white and natural.

The sublimate was used in this case to make the result more certain, (although perhaps unnecessary,) the time required for preservation being long, the weather exceedingly warm, and the subject a bad one, from the great infiltration of water through all the cellular membranes. Whether the delicate rose colour, so perceptible upon the surface, arose from the chemical action between the two injected fluids is not known, but it certainly added much to the natural appearance of the body.

To the Editors of the Medical Examiner.

GENTLEMEN,—In looking over some papers to-day, I found my notes of the autopsy of Mrs. Dilks, about which I spoke to you some weeks ago. The case was certainly a very remarkable one of "severe apoplexy," (hæmorrhagie foudroyante.) The notes are at your service, with an account of the autopsy, from my friend, Dr. Ashmead, who made the examination.

Your obedient servant,

JOHN A. ELKINTON, M. D.

Philadelphia, August 2, 1842.

Case of Mrs. Elizabeth Dilks.

March 25, 1842. The patient, aged 52 years, was found lying in the second story, about half past two o'clock P. M., the 24th, yesterday. She was able to speak, and said she had had a fall in the cellar. Her first attendants, under the impression she had fainted, opened the windows, and gave her spirits of camphor and water. I found her about thirty minutes after she was first discovered, (she was seen at the front door, well, at half past twelve to one o'clock the same day,) with livid surface, apparently the effects of cold. Pulse tense, wiry; very slight, if any, perceptible stertorous breathing; consciousness retained; placed her hand frequently to right side of her head, and occasionally vomited; indistinct articulation, but evidently aware of her situation, and what was going on around her. Mustard plasters were applied to the ankles, and she was covered with blankets; the

hands and feet placed in hot water, and revulsives generally instituted. Cups were ordered to the temples, behind the ears, and wherever they could be applied to the head. In about two hours the pulse intermitted, and apoplectic symptoms were clearly developed—pouting of the lips, stertor, &c. I opened the temporal artery, which bled very freely. Mustard was applied between the shoulders, the hair removed from the head, &c., and while the blood was flowing freely from the divided artery she died.

Autopsy.

The congestion of the vessels of the scalp and cranium was enormous, and several ounces of thick dark blood escaped on raising the scalp. Considerable extravasation existed on the pericranium beneath the cups.

Arachnoid and pia mater transparent; no thickening nor inflammation; no effusion of serum on upper surface of brain.

On removing the cranium, there was also great congestion of all the vessels of the dura mater, and they poured forth blood profusely.

Vessels of pia mater all turgid with black blood.

A large quantity of bloody water at base of brain.

A coagula of blood in the separation of the arachnoid and pia mater at the base of the brain, in front of the pons.

Cortical and medullary portions more than usually injected. Their substance of a natural firmness.

Left lateral ventricle and its anterior and posterior cornu filled and much distended with serum and fluid blood.

The lacerated vessel was that between the junction of the corpus striatum and thalam. nerv. opt. of right side. This lateral sinus, with its *anterior* and *posterior* cornui, was filled and greatly distended with coagulated blood, which seemed to have been forced mechanically into it; lacerating the substance of this thalamus, and the substance of the brain over the inferior cornu, so as to compress it completely, and prevent all hæmorrhage into it.

The substance of the brain next the coagula was a mere pulp, intermixed with small coagula.

A coagulum was found in the centre of the substance of the pons varolii.

The amount of blood found in the vessels of brain, and the effusion, was calculated at sixteen ounces.

The coats of the vessels at base of brain, and in the fissure of Sylvius, were thickened with numerous small patches of a yellow, opaque, cartilaginous transformation.

CLINICAL REPORTS.

Blockley Hospital—Service of W. W. Gerhard, M. D.

Reported by M. W. Wilson, M. D., Resident Physician.

Case of Dropsy dependant upon Cirrhosis of the Liver.

J. M. G., an Irishman, æt. 29, entered the Hospital on the 26th of March, 1842. He had been previously in the hospital for the same complaint, and a notice of the case was published in a previous No. of the Medical Examiner.

After leaving the hospital he worked on the Lehigh coal wharf for three or four weeks. During that time he remained quite well; he had no dropsy, drank no spirits, and his appetite was good. At this time work declined, and about ten days afterwards he perceived a swelling in his abdomen, with pain in the right hypochondrium. He has had but one chill, which was followed by fever, and preceded the other symptoms. His appetite now became bad, his bowels confined, and his urine scanty and very dark coloured.

March 28th. *Present state.*—Slight jaundice; no œdema of face or arms; abdomen enlarged, and fluctuation can be felt; tympanitis and abdominal tenderness. The scrotum and penis are extremely distended; œdema of extremities moderate. Pulse 68 per minute, small and feeble; circulation feeble through the capillaries; veins distended; tongue slightly coated, and yellowish. The urine is scanty, of a dark yellowish-green colour, thick and muddy in appearance, and exhibits the changes characteristic of the presence of bile by the addition of hydrochloric and nitric acids.

He was treated with purges of jalap and bitartrate of potassa (ten grains of the former, and two drachms of the latter) daily. Occasionally the colchicum mixture, (℞. Vin. Sem. Colchici; Magnesiæ, *aa.* ℥i. Magnes. Sulph. ℥i. Aquæ Simp. ℥iv.) was substituted, when it could be used without producing too much irritation on the stomach and bowels. He also took ten drops of the nitro muriatic acid three times a day; and a bandage was applied to the abdomen, so as to make pressure from above downwards. Two or three days after his entrance a few punctures were made in the scrotum with a lancet, and the fluid allowed to exude. Erysipelas of a pretty severe grade followed the puncturation of the scrotum, and extended up the abdomen, yielding, however, to applications of leadwater and laudanum.—Half an ounce of bitartrate of potassa was also prescribed in juniper tea, which he drank daily.

This treatment was pursued until the 4th of April, with considerable benefit—the jaundice became less marked, and the dropsy diminished. About this time a troublesome cough commenced, with frothy expectoration, dyspnœa, and the physical signs of bronchitis, for which he took an infusion of ipecac. This was followed by a sudden attack of cerebral disturbance, delirium, contraction of the forehead, and distorted expression. When aroused with questions he would answer them correctly, and immediately fall into a stupid or comatose condition again. His pulse at this time was moderately full, and about 80 per minute. A blister to be applied to the nucha, sinapisms to the chest and extremities, and a turpentine injection were prescribed, and followed by great relief. In about forty-eight hours the cerebral symptoms disappeared. The treatment for dropsy—temporarily suspended during the cerebral disturbance—was again pursued, and with much benefit. On the 13th of April his urine was increased to four pints in twenty-four hours, (previously about a pint in twenty-four hours,) and the ascites and œdema greatly diminished. The purges were now discontinued, in consequence of the irritation they were exciting in the stomach and bowels.

From this time the effusion in the abdomen commenced increasing, and became so large, notwithstanding the administration of diuretics and diaphoretics, that pressing against the diaphragm produced dyspnœa so severe as to threaten suffocation. This was always very much increased in the evening, and diminished in the morning. The fear of erysipelas, which several

of the patients were labouring under in the hospital at the time, prevented us from resorting to paracentesis abdominis for some time; but the symptoms become so alarming, and the danger of immediate suffocation so great, that it was performed on the 28th of April, and four gallons of fluid taken from him. Symptoms of local peritonitis manifested themselves immediately around the puncture, but a number of leeches, followed by a warm poultice, gave entire relief. His treatment after this was diuretics, diaphoretics, and occasionally purges. The œdema left the extremities, and the abdomen commenced enlarging very much within twenty-four hours, and continued to increase gradually, and his general health to fail, until the 9th of May. He was at this time very prostrate, and had hæmorrhage from the mouth and nose. He was now again seized with a cerebral affection, which increased gradually until the 11th, when he died.

Necroscopy twenty-four hours after Death.

The arachnoid membrane was opaque, with patches of bright red, stellated, injection over the upper surface of both hemispheres. The substance of the brain was healthy, and there was no effusion in the ventricles. There was a slight effusion in the pleura; with this exception the viscera of the thorax were nearly healthy.

The peritoneum contained about four gallons of fluid.

The liver was very much atrophied, about half the usual size. In its external appearance it was irregularly knobbed from partial development of the acini. The hypertrophied acini were very large; some were the size of a hazlenut, others smaller. The colour was a light straw yellow.

The mucous membrane of the stomach was of a dark slate colour, and softened throughout.

The intestines exhibited but slight traces of disease.

The kidneys were slightly granulated, apparently the commencement of granular degeneration.

[The patient had been previously cured of the dropsical effusion during a previous residence in the hospital, so that he was able to work for several weeks at a laborious employment, exposed to the dampness of the river. Whether his health would have continued good if he had been able to follow a less injurious avocation is difficult to say. The disease of the liver was beyond remedy; but many patients who labour under these complaints are capable of enjoying life, and do not necessarily relapse into dropsical diseases when once relieved of them; still, they must be placed under circumstances which are not unfavourable, or the ascites will inevitably recur.

The disease of the liver offered a very good illustration of cyrrhosis in an advanced degree, so much so as to have nearly destroyed the proper function of the organ.—W. W. G.]

ANALECTA.

On the Evolution of Light from the Living Human Subject.—Sir Henry Marsh, Bart. M. D. appears in a long communication under the above head, in the Provincial Medical Journal for June 4th, 1842. The paper commences with a detail of many phenomena resulting from the decomposition

of organic substances capable of evolving light, and from the elimination of this subtile agent during life, by certain vegetables and many of the inferior animals. The seremarks are interesting, but present little that is novel; and we therefore pass them by without further notice, and proceed to make a few short extracts from cases of somewhat similar appearances in the human subject found towards the conclusion of the article.

The following account is quoted by Sir Henry as resting upon the authentic and unquestionable authority of a friend—

"It was ten days previous to L. A.'s death that I first observed a very extraordinary light, which seemed darting about the face, and illuminating all around her head, flashing very much like an aurora borealis. She was in a deep decline, and had that day been seized with suffocation, which teazed her much for an hour, and made her so nervous that she would not suffer me to leave her for a moment, that I might raise her up quickly in case of a return of this painful sensation. After she settled for the night I lay down beside her, and it was then this luminous appearance suddenly commenced. Her maid was sitting up beside the bed, and I whispered to her to shade the light, as it would awaken Louisa. She told me the light was perfectly shaded. I then said, 'What can this light be which is flashing on Miss Louisa's face?' The maid looked very mysterious, and informed me she had seen that light before, and it was from no candle. I then inquired when she had perceived it; she said that morning, and it had dazzled her eyes, but she had said nothing about it, as ladies always considered servants superstitious. However, after watching it myself half an hour, I got up and saw that the candle was in a position from which this peculiar light could not have come, nor, indeed, was it like that sort of light; it was more silvery, like the reflection of moonlight on water. I watched it for more than an hour, when it disappeared. It gave the face the look of being *painted white* and *highly glazed*, but it danced about and had a very extraordinary effect. Three nights after, the maid being ill, I sat up all night, and again I saw this luminous appearance, when there was no candle nor moon, nor, in fact, any visible means of producing it. Her sister came into the room and saw it also. The evening before L. A. died I saw the light again, but it was fainter, and lasted but about twenty minutes. The state of body of the patient was that of extreme exhaustion. For two months she had never even sat up in bed. Many of her symptoms varied much from those of other sufferers in pulmonary complaints whom I had seen, but the general outline was the same. Her breath had a very peculiar smell, which made me suppose there might be some decomposition going forward."

The fact is certain, the source whence derived authentic, the circumstantial detail clear and conclusive. The person from whom I derived the knowledge of this interesting fact is one of a clear head, superior power of observation, and utterly exempt from the distortions and exaggerations of superstition. The young lady about whose person these luminous appearances were manifested, I had seen several times before her return to the country; her lungs were extensively diseased; she laboured under the most hopeless form of pulmonary consumption.

Sir Henry then quotes the following statement made to him by the sister of one of his deceased patients :—

"About an hour and a half before my dear sister's death, we were struck by a luminous appearance proceeding from her head in a diagonal direction. She was at the time in a half recumbent position, and perfectly tranquil. The light was pale as the moon, but quite evident to mamma, myself, and sister, who were watching over her at the time. One of us at first thought it was lightning, till shortly after we fancied we perceived a sort of tremulous glimmer playing round the head of the bed; and then recollecting we had read something of a similar nature having been observed previous to dissolution, we had candles brought into the room, fearing our dear sister would perceive it, and that it might disturb the tranquillity of her last moments."

The prior of the two following cases appears to have produced considerable excitement at the time, in the neighbourhood where it occurerd. After some prefatory remarks, the writer proceeds—

An authentic report of this interesting phenomenon having been subsequently published by Dr. Donovan in the "Dublin Medical Press," Jan. 15, 1840, I shall extract from his statement the most important particulars of the case. The name of the patient was Harrington, and he resided in a small but populous village on the harbour of Glandore, one of the most picturesque spots on the southern coast of Ireland. Dr. Donovan states, "I was sent for in December, 1828, to see Harrington; he had been under the care of my predecessor and had been entered in the dispensary book as a phthisical patient, and on reference to my note-book, I find that the stethoscopic and other indications of phthisis were indubitable. He was under my care for about five years, during which time, strange to say, the symptoms continued stationary, and I had discontinued my attendance for about two years when the report became general that mysterious lights were every night seen in his cabin. The subject attracted a great deal of attention, and, like every thing else in Ireland, at once assumed a sectarian complexion; some attributing the lights to the miraculous interposition of heaven, others to the practice of the black art. Not regarding these views as offering any explanation of the mystery, I determined to subject the matter to the ordeal of my own senses, and for this purpose visited the cabin for fourteen nights, and on three nights only did I witness any thing unusual; once I perceived a luminous fog resembling the aurora borealis; and twice I saw scintillations, like the sparkling phosphorescence sometimes exhibited by the sea infusoria. From the close scrutiny I made, I can with certainty say that no imposition was either employed or attempted." Dr. Donovan adds, "I am of opinion that the appearances which I witnessed were dependant on the presence of phosphorescent matter in the expiratory and perspiratory secretions. The property which phosphuretted hydrogen has of undergoing spontaneous ignition when brought into contact with atmospheric air is well known; and as the components of which this is made up exist in abundance in the human body, it is not outstretching the bounds of probability to suppose that it is sometimes generated in the living system."

Dr. Donovan has lately informed me that the luminous appearances were not any time visible to him on the person of the patient; the scintillations which he has described above were perceptible immediately over the head of his bed on a wall composed of stone and clay mortar. The luminous fogs passed in streams through the apartment in which the sick man lay, and on one occasion Dr. Donovan fancied that he saw a meteor, like a falling star, suddenly pass through the house. Appearances of a similar nature are said

to have been seen about the person of a woman named Pallister who died some time ago in the neighbourhood of Hull; but I have not been able to procure any well authenticated report of the phenomena.

For the following very interesting and important fact, I am indebted to my friend Dr. William Stokes:—"When I was residing in the Old Meath Hospital, a poor woman labouring under an enormous cancer of the breast was admitted. The breast was much enlarged, and presented a vast ulcer with irregular and everted edges, from all parts of which a quantity of luminous fluid was constantly poured out. Upon being asked whether she suffered much pain, she answered, "Not now, sir, but I cannot sleep watching this sore which is on fire every night." I directed that she should send for me whenever she perceived the luminous appearance, and on that night I was summoned between ten and eleven o'clock. The lights in the ward having been then extinguished, she was sitting leaning forward, the left hand supporting the tumour, while with the right she every now and then lifted up the coverings of the ulcer to gaze on this, to her, supernatural appearance. The whole of the base and edges of the cavity phosphoresced in the strongest manner. The light was steady. I directed that the ulcer should remain open, while I retreated gradually, keeping my eyes fixed on the light, which I found distinctly visible at the end of the ward, which must have been more than twenty feet from her bed. The light within a few inches of the ulcer was sufficient to enable me to distinguish the figures on a watch dial. I have no very distinct recollection of the colour of the light, but I remember that its intensity was variable, it being on some nights much stronger than on others."

After a few chemico-physiological conjectures about these cases Sir Henry adds—

Between the facts now recorded, and the state of the body when *spontaneous combustion* takes place, there is a very striking analogy. In one case of spontaneous combustion which is related on good authority, from the person who suffered from this mysterious and, as we may justly call it dreadful, disease, a lambent flame was distinctly seen to issue; this was observed while the patient was still alive, for he lived for four days after the occurrence of the spontaneous combustion, and was able to give an accurate account of his earliest sensations. This is an important fact, and bears directly on the subject we are discussing; before internal combustion can take place, the vital property must have nearly lost its controlling influence, as already explained, and chemical action, before death, must have begun to predominate. This explanation is corroborated by another case, the details of which have been published. It is the fact of the disengagement of a gas throughout every part of the body, which became universally emphysematous; on making an incision into any part the gas escaped, which, when touched with the flame of a candle, ignited and burned with a blueish flame.

The paper concludes with the following experiment by M. Magendie—

Half an ounce of olive oil, in which two grains of phosphorus were dissolved, was injected into the crural vein of a dog. Before the syringe was completely emptied, a dense white vapour began to issue from the nostrils, which became faintly luminous on the removal of the lights. An additional half ounce of phosphorated oil, of equal strength, was then injected, and the lights extinguished. The expirations immediately became beautifully lumi-

nous, resembling jets of pale coloured flame pouring forth from the nostrils of the animal. This extraordinary spectacle continued until the death of the dog, which occurred in about five minutes. In this experiment the rapid transit of the injected fluid from the vein in the remote extremity to the lungs, and its instantaneous expiration in the gaseous form, were very remarkable. The result of the experiment would also seem to show that in some, at least, of the instances of luminous appearances referred to, the presence of phosphorus formed an element in the production of the effect.

Remarks.—Sir Henry is inclined to attribute the occurrence of these rare and singular phenomena to a change in actually living parts, reducing them to a condition "perfectly analogous to the first and earliest stage of decomposition," the light being "evolved precisely in the same manner as this phenomenon is produced in the dissecting room, in burial grounds, and in marine animals during the early stage of decay." There is no doubt that many alterations somewhat analogous *in appearance* to chemical decompositions, are continually going on during life—the changes now well known to occur in the globules of the blood during inflammation, and other diseases, are a sufficient proof of this fact—but the value of conclusions drawn from such predicates is, in the present state of science, exceedingly doubtful. If the old opinion, that vital action is the antagonist and not the result of a mere modification of chemical law, (a doctrine the foundations of which, it must be confessed, are beginning to be threatened pretty loudly,) is to be overthrown, it must be by much stronger evidence than that presented by the evidence of such cases as those above recorded. We can perceive nothing in the phenomena noticed, other than the proof of morbid or misplaced secretions in some conditions of the constitution, in animals which do not present them at all, or present them only in other places during health. There are some plants which, at certain hours, envelope themselves in a halitus of inflammable gas sufficient in quantity to yield a flash over their stem and branches on the touch of a candle, and even their leaves have been injured by the heat, when the experiment has been too often tried. Why, then, may not disease occasion similar eliminations from the animal frame? As to the secretion of *light*, even during health, it is so common a property of animal life, that it would be almost as reasonable to wonder at its habitual absence in the more noble animals, than to be surprised at its occasional presence in them from morbid causes. Whether the phenomena under notice are regarded as the result of combustion or simple luminous secretion, they certainly do not transcend the analogies of living nature, and whether their action be interstitial, as in the latter cases, or superficial in the shape of exhalations, as in the former, they are attributable immediately to the agency of matters which may be properly regarded, we think, as vital products foreign to the living parts, and in their nature excrementitious.

R. C.

Disease of the Tarsal Bones—Chopart's Operation.—H. S., a pale, unhealthy-looking lad, of sallow complexion and slight conformation, was admitted into the University College Hospital April 7, under the care of Mr. Liston. Just before Christmas, in jumping from a height, he received a very severe sprain of the foot. This obliged him to lay up, and was followed by considerable inflammation of the foot, and the formation, after many weeks, of an abscess on the outer side of the foot, over the cuboid bone.—About three weeks before his admission this abscess was opened, and discharged a considerable quantity of pus. An unhealthy-looking ulcer now exists in this place, surrounded with blue-looking integument, filled with pale granulations, and attended with much ichorous discharge. The grating of carious bone can be felt by the probe, passed through a sinus opening into the ulcer. He was immediately placed in bed, and the leg and foot kept quite at rest, the ulcer being dressed with simple water-dressing. He was placed on full diet, and ordered to take the iodide of iron. No change taking place, it was next attempted to expose the diseased bone, by destroying the granulations of the ulcer with potassa fusa. It was soon, however, discovered that the disease extended through the articulation, between the calcaneum and the cuboid and scaphoid bones, so that a probe passed readily from the ulcer, through the articulation, to the inside of the foot. His health seemed to suffer considerably, and after a month's residence in the hospital, he was sent out for change of air.

On the 12th of April, five days after leaving the hospital, he returned again, suffering severe pain in the diseased foot, so much as to entirely prevent sleep: he had become very thin, and exhibited all the symptoms of hectic fever. Under these circumstances Mr. Liston proposed an operation, to which the boy consented.

13. To-day Mr. Liston removed the whole of the foot, with part of the astragalus and os calcis, after Chopart's method. The articulating surfaces of the calcis, cuboid, and scaphoid, were found completely deprived of their cartilage by ulceration, and the two latter bones evidently diseased. A small portion of the os calcis, also diseased, was removed by the cutting pliers. Two bleeding vessels were secured by ligature; and in the evening, bleeding having entirely ceased, the flap was placed in position, and retained by three points of suture and isinglass plaster. He was placed in bed, and the leg raised on the double-inclined plane (MacIntyre's apparatus).

14. Has passed a good night; feels better, and more free from pain than he has for some weeks before; looks cheerful. To have one grain of the iodide of iron in an ounce of infusion of orange-peel, three times a-day.

15. Feels in every respect much better, excepting that he is a little feverish. Bowels have not been opened for two days. To have half an ounce of castor-oil directly.

16. Has slept but little during the night, having been in much pain from some displacement of the apparatus in which the leg rests. This was readjusted to his comfort. Bowels have been freely opened; pulse 120; tongue clean and moist.

24. From the last report everything has gone on well, the greater part of the flap having united very firmly. At two points there is some degree of suppuration going on deeply, and communicating with the surface by two small sinuses. The ununited portion of flap is dressed daily with solution of sulphate of zinc and lint, and oil-silk, and is cicatrising rapidly. His health is greatly improved.

May 2. The treatment continues the same, with the addition of a roller, and the case is going on favourably.

23. After the last report, two small abscesses formed near the heel, which were opened, and soon healed, and he was discharged at this date. He has returned once since, and the portion of the foot left seems likely to be very serviceable. The operation does not seem at all likely to be followed by that displacement of the foot backwards which sometimes follows it, and which by some is considered a serious objection to it.—*London Lancet, June* 25, 1842.

On Fibre. By Martin Barry, M. D.—Dr. Barry observes that in the mature blood-corpuscle there is often seen a flat filament already formed within it. In mammalia this filament is frequently annular. In birds, amphibia, and fishes, the filament is so long as to form a coil. This filament, he states, is formed of discs contained within the blood corpuscles. At the outer part of the coil, the filament, which is flat, often presents its edge, whilst in the centre there is generally found the unappropriated part of a nucleus. The nucleus, he says, in many cases resembles a ball of twine, being composed, at its outer part, of a coiled filament. In the invertebrata, examined by Dr. Barry, it is stated that the blood-corpuscle was likewise seen passing into a coil. This coil filament is described as being not only flat, but deeply grooved on both surfaces, and consequently thinner in the middle than at the edges, which were rounded, so that when seen edgewise the filament seemed to consist of segments.

It is mentioned that portions of the clot of blood consist of filaments having a structure identical with that found within the blood corpuscle. Dr. Barry states that he has seen the ring in the blood corpuscle of man, and the coil in that of birds and reptiles, unwind themselves into the straight and often parallel filaments of the clot. This appearance, he states, may be seen in blood placed under the microscope before its coagulation, and that filaments having the same structure may be met with in every tissue of the body.

He found the same filaments to exist in all vegetable structures, and he states that this, which he denominates a filament, is what has been usually described as a fibre. By a kind of apparent analogy, Dr. Barry endeavours to show that two spirals running in opposite directions, and interlacing at certain regular intervals, would produce an appearance which he could not distinguish from the simple filament, and he asserts that such an interlacement of two fibres would both produce a flat fibre, and also give it a grooved appearance. This, he asserts, is, in fact, the true structure of the fibre or *flat filament*, as he terms it. The edges of this filament present an appearance of segments; but this he states is to be attributed to the consecutive curves of a spiral thread. The ultimate fibre or minutest filament, he states has this structure.

He hence asserts that the spiral arrangement is as general in the animal tissues as in vegetables. Nervous tissue, muscle, minute blood-vessels, and the crystalline lens are adduced in proof of his statements, and he even infers that spirals are as universal as the fibrous structure itself.

Dr. Barry states that the spiral form manifests itself very early, and refers to the corpuscles of blood in proof of this statement. Dr. Barry also states he observed, in the cartilages of the ear of a rabbit, the nucleus lying loose

in its cell, resembling a ball of twine, being composed at its outer part of a coiled filament which it was giving off to weave the cell-wall.

Dr. Barry traces the formation of muscle out of cells, which, according to his observations, are derived from corpuscles of the blood. In this process he states he has observed the formation of a second order of tubes within the original tube; a peculiarly regular arrangement of discs within these second tubes; the formation, first of rings and then of spirals out of discs so arranged; the interlacing of the spiral; and the origin, in the space circumscribed by those, of spirals having a minuter size, which, in their turn surround others still more minute. The outer spirals are stated to enter into the formation of the investing membrane described by Schwann and Bowman. The inner spirals constitute what are usually termed fibrillæ, or which he terms a *flat filament*, and which, he asserts, is a compound structure. He asserts this fibril is not round and beaded, but flat and grooved, and, (if we understand the author aright) always "presents its edge to the observer," in voluntary muscles. In Dr. Barry's opinion, the dark longitudinal striæ are spaces, probably occupied by a lubricating fluid, between the edges of flat filaments, each filament being composed of two spiral threads, and the dark transverse striæ, rows of spaces between the curves of these spiral threads. He appears to attribute the contraction of a muscle to the contraction of the supposed spirals.

He states that the toothed fibre of the crystalline lens, described by Sir David Brewster, is formed of an enlarged filament, the projecting portions of the spiral thread becoming the teeth of that fibre.

The compound filaments are stated to be seen with peculiar distinctness in the blood-vessels of the arachnoid membrane. In connection with the spiral direction of the outer filaments in these vessels, Dr. Barry refers to the rouleaux in which the red blood discs are seen to arrange themselves under the microscope, as probably indicating a tendency to produce spiral fibres.—*Edinburgh Medical and Surgical Journal, July* 1, 1842.

Biographical Sketch of the late Sir Charles Bell, K.H. F.R.S. &c.—This eminent surgeon and physiologist, whose recent death has deprived the profession of one of its brightest ornaments was the youngest son of the Rev. William Bell, a clergyman of the Episcopal Church of Scotland.

He was born in the year 1775, and received his education in the High School of Edinburgh. He was still very young when he began the study of anatomy under the celebrated John Bell, who, twelve years senior to his brother Charles, was already in the highest estimation as a lecturer and a surgeon, and to whom he was apprenticed in 1792.

To the instruction he received under this enthusiastic and highly gifted teacher, may, in great measure, be attributed the success with which Mr. Bell cultivated and improved the sciences of anatomy and physiology; and the ardor with which he at this time pursued his studies, is shewn in the publication of the first volume of his "System of Dissections," when he was yet only in his twenty-second year. This, his earliest work, bears that stamp of originality which characterized every production of his after life. It presents the germs of numerous important doctrines which he employed himself in developing in his later publications. The engravings contained in it, taken from original drawings by himself, with some etchings by his own hand, prove how accomplished he was as an artist at that time; and were

the first indications of a power of using his pencil, which was not only useful for illustrating his lectures and works, but was the source to him in private life of never-failing pleasure.

In the year 1799, Mr. Bell became a Fellow of the Royal College of Surgeons of Edinburgh, and was shortly afterwards appointed Surgeon to the Royal Infirmary. Here he soon acquired reputation as an operator, by his simple and dexterous manner of using the scalpel alone in the operation of lithotomy. A few years afterwards he determined to relinquish his prospects in Edinburgh, and seek success in London. To this step he was led by many circumstances, amongst the principal of which was, perhaps, the excited state of party feeling at that time existing in Edinburgh, and from the annoyances of which he could scarcely hope to escape, as his brother, whose powers of sarcasm and peculiar aptness for controversial writing made him an object of fear and dislike to his opponents, was at this time leader of one of the parties which divided the profession.

Mr. Bell came to London in 1806, and very soon gained for himself a high reputation as a lecturer on anatomy and surgery. Nothing can more decidedly prove how great were his qualifications for the career on which he had embarked than his success at such a time. Unsupported—dependent on his own exertions alone—he was enabled to enter into competition with Cline, Abernethy, Cooper, and others scarcely less known, and to come off with honour. Himself an ardent lover of his profession, he had a manner, scarcely to be surpassed, of inspiring in others the same admiration, and he could invest with an interest before unfelt the dryest details of anatomical demonstration.

It was only to be expected, that, with these powers, combined with an unwearying devotion to his professional pursuits, and to the progress of his pupils, he should have been enabled—associated with Mr. Wilson, and afterwards with Mr. John Shaw, in the school of Great Windmill Street—to raise the character of that school to the highest pitch. His lectures could not fail to interest and instruct even those who were unable to appreciate that boldness of conception and originality of mind which were displayed in them, and which afterwards led to so great results. It was in this school that he first explained his original and beautiful views on the Nervous System—those views which have gained to himself immortality, and reflected honour on his country.

Mr. Bell's fame as a surgeon must at this time have stood very high in London: for, in 1812, he was elected surgeon to the Middlesex Hospital, after the severest contest ever known in that institution. From this time, till he quitted London, he lost no opportunity of giving clinical instruction to the pupils. Many of these lectures were published in this journal: and our readers will not think that we exceed in our praise, if we represent them as among the best models of that style of teaching to be found in medical literature.

Previous to his election, he had received, after a nominal examination, the diploma of the College of Surgeons of London.

His zeal in the cultivation of professional knowledge had been before, and it was subsequently, instanced by the alacrity with which he availed himself of the opportunities offered for the study of gun-shot wounds by the battle of Corunna, and afterwards by that of Waterloo. After the latter action, he and his brother-in-law, Mr. John Shaw, were the first surgeons from England who arrived at Brussels; and Mr. Bell was unremittingly employed in his

attentions to the wounded, in taking cases, and in making those sketches and drawings which have been justly regarded as amongst the finest specimens of water-colour painting. For three successive days and nights was he engaged in operating on and dressing the wounded, and he had no fewer than 300 cases under his own personal care. The results of his observations are appended to his "System of Operative Surgery."

His appointment to the Professorship of Anatomy and Surgery to the College of Surgeons, a few years later, gave him an opportunity of displaying, in the most decisive manner, the depth and clearness of his reasoning powers, the originality of his mind, and his singularly felicitous method of imparting knowledge.

He chose for his subject, among others, one which was always a favourite with him, "The evidence of design in the formation of our frames;" and he was daily listened to with attention and delight by crowds of the most eminent men of the day both in and out of the profession. That his style combined a substantial and effective power of reasoning which satisfied the understanding, with an easy and impressive manner that bound his listener's attention to him, may be illustrated by a saying imputed to the present venerable Bishop of Durham, then a frequent attendant upon his lectures—"Sir Charles Bell's discourses convey to me the impression not so much of a lecture, as of a man *thinking aloud*."

To the delivery of these lectures we owe the publication of his two papers on "Animal Mechanics" in the Library for the Diffusion of Useful Knowledge, in which is illustrated, in his most happy manner, the idea, that the type of most of those mechanical contrivances which the labour and ingenuity of man have been so long in perfecting, may be found by the inquirer in the construction and adaptation of parts in the animal economy. The remarkably extensive circulation of these papers proves how favourably they were received by the public.

Following out the same train of thought, he was led, when selected by the trustees of the Earl of Bridgewater to write one of the treatises in fulfilment of the wishes of that nobleman, to choose the subject of the "Hand;" his essay on which is too well known and appreciated to need comment.

He was afterwards associated with Lord Brougham in the publication of the illustrated edition of "Paley's Evidences of Natural Theology"—a beautiful work, to which both his pen and pencil contributed largely.

His reputation as a man of science, in consequence of these publications and his physiological discoveries, rose so high, that on the accession of William IV. he was amongst the number of those who received the honour of knighthood as an acknowledgment of their high scientific merit. In the meantime, he continued with undiminished success to deliver his lectures in Great Windmill Street, until the year 1828, when he was induced, on the formation of the London University, to accept the chairs of Physiology and Surgery in that school; and to him it was allotted to give the first lecture delivered within its walls.

He did not long remain attached to this institution, the dissensions which arose soon after its establishment causing him to relinquish his Professorship. His connection with the Middlesex Hospital, however, continued until his appointment to the Chair of Surgery in the University of Edinburgh, in 1836, induced him to leave London, and to return to the scene of his early labours and his early success; taking with him the regrets of all who knew him, and the respect and esteem of the whole profession.

The life of Sir Charles Bell was one of incessant and laborious study. This is sufficiently evidenced by his numerous works. Few, however, except his friends, know how unremitting was his application to his duties as a Teacher—with what care and attention each lecture, though only clinical, was studied, even to his last course.

Before concluding this short sketch of one who for nearly half a century devoted his high talents to the advancement of our profession, it may be expected that we should say a few words on his private deportment in social life. His manners, we would say, were characterized by unpretending simplicity, combined with an openness and cheerfulness of demeanor, the best signs of an honourable and self-respecting mind. Refined in his tastes—blending in his manner great courtesy, with a dignity which commanded respect—his conversation flowing easily and naturally from the sources of his richly-stored and fertile mind, aided by his retentive and ready memory, and heightened by a vein of true and refined wit—he was in every way calculated to be an ornament to society.

With his singleness of character were united great firmness and moral courage: the fear of consequences never deterred him from inflexibly following what he considered his duty; his energy of mind often drew him into a forgetfulness of every object foreign to that which was occupying him; of what the world would have considered his interests he was never careful. Hence he was often regarded by those who did not know him as cold, indifferent, and severe; persons who really knew him will never cease to remember how entirely the reverse was his true disposition. He had a warmth of feeling which made him ever keenly alive to the happiness or misfortunes of his friends; ever ready to afford them his advice and assistance, and to promote their welfare to the utmost of his power.

Constantly exercising, even in relaxation, his acute powers of observation and natural ingenuity, objects to occupy and interest him were seldom wanting. Indeed, he displayed, in a remarkable manner, an enlightened sympathy with every, even the meanest, work of nature. From this cause it may have arisen that his pleasures and solacements from the toils of business were usually obtained from simple sources. One principal feature of his character was his being an ardent admirer of the beauties of the country, to which no doubt his facility and admirable skill in sketching from nature greatly contributed. For many of his latter years he was a keen fisher, a sport the love of which was partly cherished on account of the healthful exercise it secured to him; but more, perhaps, for the delightful rural scenes into which it carried him. In fine, we may sum up his private character by saying, that, joined to his highly philosophical and powerful intellect, he possessed a heart warm and generous, and susceptible of the kindliest impressions. Gifted with qualities to command admiration in others, it was the affection of those immediately around him, and connected with him by long friendship, for which he seemed principally to live.—*London Med. Gazette.* June 3, 1842.

On the occasional tendency of Iodine to produce Inflammation of the Joints. By J. M. Winn, M. D.—About nine years since the late Dr. Balmanno, of Glasgow, called my attention to a patient of his who had taken iodine under his direction, and whose finger-joints had become swollen during the use of the medicine. Dr. B., at the time, conjectured whether the

tumefaction might not have been occasioned by the iodine. As the case was a solitary instance, several gentlemen, who were present, as well as myself felt sceptical as to the fact. I had quite forgotten this circumstance until very lately, when it was recalled to my memory by a somewhat similar case occurring in a young gentleman of Truro, which I saw in consultation with Mr. Jervis of this town. The patient I alluded to was about 20 years of age, and had suffered from hæmoptysis and an indolent superficial inflammation of the fauces; for the latter symptom we repeatedly prescribed, with the best effect, two grains of potas. iodid. three times a day; and the peculiarity of the case was, that as the throat improved in appearance the wrist joint became inflamed and swollen, and on leaving off the iodine the joint speedily recovered its natural state. As this effect occurred every time the iodine was administered, I was led to suspect it was caused by the medicine, and on mentioning my suspicion to Mr. Jervis, he thought he could confirm my opinion by a case of enlarged spleen which he had lately treated successfully by potas. iodid., and in which the joints became swollen on the subsidence of the swelling of the spleen.

From these cases we may conclude that iodine has an occasional tendency to produce inflammation of the joints, and that, when it does produce this effect, it is a sign that the medicine is acting beneficially and effectually on the system. I may incidentally notice that, in the case of the young gentleman alluded to above, the iodine invariably produced, in addition to the inflammation of the joints, an eruption of pustules in different parts of the body; this latter symptom, and also coryza, I have noticed as very common effects of potas. iodid. I would further observe, that the influence which potas. iodid. exerts on the structure of the joints, may be adduced as an additional argument to prove that mercury and iodine have similar effects on the animal economy. Iodine, like mercury, is an effectual remedy for rheumatism, and, like it, we perceive it has also the property of producing a rheumatic sort of inflammation of the tendinous and ligamentous structures.

P. S.—Since writing the above I have met with another case, showing the influence of iodine on the joints. The patient, Mrs. L., of Tywardreath, had been taking potas. iodid. for about a fortnight, under the direction of Mr. Vaudrez, of St. Austell, for an affection of the head, when she complained, with some feelings of alarm, that her finger-joints were swelling. On showing them to me, I attributed the thickening to the action of the medicine. The truth of my opinion was verified by the speedy reduction of the swelling on intermitting the iodine—*Ibid.* July 1, 1842.

[Largely as we have used the iodide of potass, we have never seen such a result as that stated by the author. Indeed, we have found no other inconvenience except occasional fever, headache, flushing of the face, and ill defined feelings of uneasiness at the stomach.]

Test for Arsenic.—Mr. Rodgers, at a recent meeting of the Royal Medico-Botanical Society, mentioned the following test for arsenic:—The galvanic test was first proposed by the German chemists, who employed a simple apparatus, similar to that used for electrotype purposes, placing the suspected solution in the inner vessel, and a solution of hydrochlorate of ammonia in the outer; they then put a piece of zinc in the outer vessel, and bent a platinum wire (attached to the zinc) so as to dip into the inner one. In the course of a few hours the arsenic was deposited on the wire.—*Provin. Med. Jour.* June 4, 1842.